

OLD UNREDUCED POSTERIOR DISLOCATIONS OF THE SHOULDER.

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THE importance of the long tendon of the biceps, in preventing and maintaining reduction in certain cases of dislocation of the shoulder, has generally escaped attention. It seems probable that in posterior dislocations of the shoulder the long tendon of the biceps may be torn from its groove between the tuberosities of the humerus and, on account of its displaced position, not only interfere with the reduction of the dislocation, but may displace the head of the humerus after reduction has been accomplished.

CASE.—A posterior dislocation of the head of the humerus was reduced three times during the first month after the accident occurred. Reduction was accomplished at each attempt, but the dislocation promptly recurred. Examination eight months after the injury showed the biceps tendon displaced from its groove and passing directly from its origin over the centre of the glenoid fossa. No bloodless reduction was attempted at this time. The joint was exposed; reduction accomplished; the displaced tendon of the biceps put into place and retained between the tuberosities by means of a periosteal bridge, and the soft parts repaired as much as possible. At this time, one year after the operation was performed, the extremity is useful and painless.

Alexander W., a clerk thirty-eight years of age, was thrown from a bicycle during July, 1905, producing a posterior dislocation of the right shoulder. Reduction was accomplished without the use of general anæsthesia. Examination one week later showed that the dislocation had recurred. A surgeon was called in, who reduced the dislocation under general anæsthesia. Recurrence was prompt, and in two or three days reduction was again accomplished under general anæsthesia. It was said that the last reduction was difficult and prolonged. In a week the bones were

again found out of position, but no attempt was made to put them in place.

The extremity was painful and practically useless. During the next few months the pain increased in severity and the muscles became atrophic, although massage and passive motion were employed.

I saw the patient with Dr. A. N. White, of Denver, Colo., about eight months after the injury occurred. At this time the dislocation was easily made out, and it could be determined that the long tendon of the biceps no longer occupied its normal position in the groove between the tuberosities of the humerus, but passed from its origin directly over the glenoid fossa of the scapula. There was no sensory or motor paralysis.

Operation was performed March 12, 1906. The joint was exposed by a deltoid flap, dividing the deltoid near its insertion and turning the muscle upward. The head of the humerus was found in the subspinous fossa. The supraspinatus, infraspinatus and a portion of the teres minor were detached from the greater tuberosity. The long tendon had been torn from the bicipital groove and the transverse ligament had been destroyed. The capsule of the joint had been detached from the head of the humerus and was contracted into a cicatricial mass about the glenoid cavity. It was incised and pushed out of the way sufficiently to clear the glenoid fossa. Reduction was then attempted but could not be accomplished. It was found that the subscapularis, which had not been torn from its insertion, prevented reduction. This muscle was divided in sections close to the lesser tuberosity. The dislocation was now reduced. The biceps tendon was placed between the tuberosities and a flap of periosteum sutured over the tendon to hold it in place, making, as it were, a new transverse ligament. It was impossible to repair the joint capsule. Some of the cicatricial tissue, together with a portion of the fascia of the under surface of the deltoid, was sutured to the periosteum over the tuberosities to assist in maintaining reduction. The deltoid was united with catgut and the wound closed without drainage. The arm was held in abduction with a plaster dressing.

Ten days later the dressing was removed and the wound found to be healed throughout. The arm was gradually brought down to the side. Passive movements and massage were resorted

to and voluntary motion was encouraged during the third week following the operation. Two months later the patient had very good control of the extremity. Flexion and internal rotation were normal, but outward rotation was somewhat limited and abduction very slight. The strength and range of motion gradually increased so that six months after the operation was performed the extremity was sufficiently serviceable to accomplish ordinary work. One year after the operation the patient states that "the arm is as good as the other one." This statement must be modified. I recently examined the patient and found a very useful extremity indeed, but found abduction limited to the horizontal position. Further abduction is accomplished by an upward rotation of the scapula and not by movement at the shoulder joint. The deltoid is weak but does not seem atrophic. The remainder of the extremity is apparently normal. The shoulder and arm have not been painful at any time since the first week after the operation.

The reports of cases of old unreduced posterior dislocations of the shoulder are so few that it is impossible to draw definite conclusions regarding the indications for operative treatment, or the operative procedure that is best suited to these patients. It is generally agreed that operation should be done when bloodless methods fail to reduce the dislocation, and if operation is necessary, early operation is desirable. Not all surgeons deem it advisable to perform early operations in these cases. According to J. E. Mears¹ many operators, especially English surgeons, advise operating six to eight weeks after the dislocation has occurred. Souchon,² who in 1897 made an exhaustive study of old unreduced dislocations of the shoulder, states that, "It goes without saying that no operation should be attempted before all possible means of bloodless reduction have been conscientiously applied in recent as well as in old irreducible or unreduced dislocations." There may be exceptions to Souchon's statement, and it would seem, from the case herewith reported, and a consideration of the anatomy about the shoulder joint, that a displacement of the long tendon of the biceps, which may occur in backward

dislocations of the shoulder, is a condition that demands a violation of this very good rule. If in a posterior dislocation of the shoulder it can be determined that the long tendon of the biceps has been torn from the bicipital groove operation should be done at once. Even if reduction can be accomplished by manipulation the abnormal position of the tendon, passing over the shallow glenoid fossa, will, when the biceps is contracted, force the head of the humerus out of its normal position.

The literature on this subject throws no light on the importance of the biceps tendon in these cases. Briddon, Reid,³ Adams,⁴ and J. H. Brinton,⁵ who have reported operated cases of old unreduced posterior dislocations of the shoulder, do not mention the biceps tendon and do not speak of rupture of the transverse humeral ligament.

TYPE OF OPERATION.

Resection of the head of the humerus has been the operation performed in three out of the four cases of unreduced posterior dislocations of the shoulder operated upon. Briddon and Adams report "good" results following resection in their cases; while Reid states that three months after the operation abduction was limited, but the patient had been benefited by the operation. J. H. Brinton produced a fracture of the humerus, with a resulting false joint, in his case and reports a "good result." All of these reports are indefinite regarding the pathology of the dislocations, the description of the operations, and the results obtained.

A study of the reports of unreduced dislocations of the shoulder—other than the posterior variety—suggests that operation is indicated in posterior dislocations when bloodless methods fail to accomplish reduction, and in all cases in which it can be determined that the biceps tendon has been torn from its groove; and that reduction is preferable to excision or other operative procedures. The subcutaneous division of adhesions, recommended by the French, should be supplanted

by free exposure of the parts. Of the many methods advised in operating on these cases, the one turning up the deltoid in the flap gives the best exposure of the shoulder joint and the surrounding structures. The straight or slightly curved incisions are preferred by some operators. The long anterior incision seems to be the one of choice in treating old unreduced anterior dislocations of the shoulder.

I was surprised that I could find the reports of only four cases of old unreduced posterior dislocations of the shoulder treated by operation.

CASE I.—Bridson reports a subspinous dislocation of the head of the humerus in which manipulation failed to accomplish reduction. The head of the bone was resected. The result is described as being "good," but no details are given.

CASE II.—Reid treated an old unreduced posterior dislocation of the shoulder by resecting the head of the humerus. Three months later the arm was freely movable with the exception of abduction which was limited.

CASE III.—Adams resected the humeral head in a posterior dislocation of the shoulder that could not be reduced by bloodless manipulation. The patient, who was a porter, was able to perform his duties without difficulty a few months after the operation was performed.

CASE IV.—Brinton, being unable to reduce an old posterior dislocation of the shoulder, exposed the joint by using a V-shaped incision. Reduction was not accomplished, but a fracture was produced below the head of the humerus making a false joint. He reports a "good result."

BIBLIOGRAPHY.

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- ² Souchon. *American Surg. Assn.*, 1897.
- ³ Reid. Quoted by Souchon. Case reported in 1887.
- ⁴ Adams. *Royal Medical and Surgical Society*, March, 1888.
- ⁵ Brinton. *Dunglison's College and Clinical Review*, Nov., 1897.